NAIP 2005 INSPECTION PROCESS

USDA Planning Meeting
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NAIP Inspection Team

USDA-FSA-APFO

NAIP 2004 Inspection Background

- Inspection completed November 2005.

- Inspection could not begin until DOQQs were in house.

- 100% of individual DOQQs inspected.

- Different process and inspection team for 1 meter and 2 meter images.

- Contract reconciliation was not able to be completed until months after imagery was in house.

NAIP 2004 DOQQ Inspection

- Individual DOQQ quality inspection

- 15 percent measured for accuracy

- 2 meter resolution 10 points picked for accuracy per DOQQ

- 1 meter resolution 20 points picked for accuracy per DOQQ

- Thorough but very time consuming process

NAIP 2005 Inspection Process Background

- Inspection can begin when CCM imagery arrives in house.

- Compressed County Mosaic usually arrives before DOQQ tiles.

- 1 meter and 2 meter resolution now done by the same inspection team allowing for a more cohesive inspection process.

- Reconciliation needs to begin as early in the year as possible so contracts can be closed out.

NAIP 2005 Inspection Process Introduction

- Inspection is performed on both the Compressed County Mosaic and selected DOQQs in a county.

- Inspection is performed using a 3 phase process.

- Custom ArcGis tool designed at APFO used for Inspection.

- Data collected is stored in an ORACLE database.

NAIP 2005 New Inspection Process
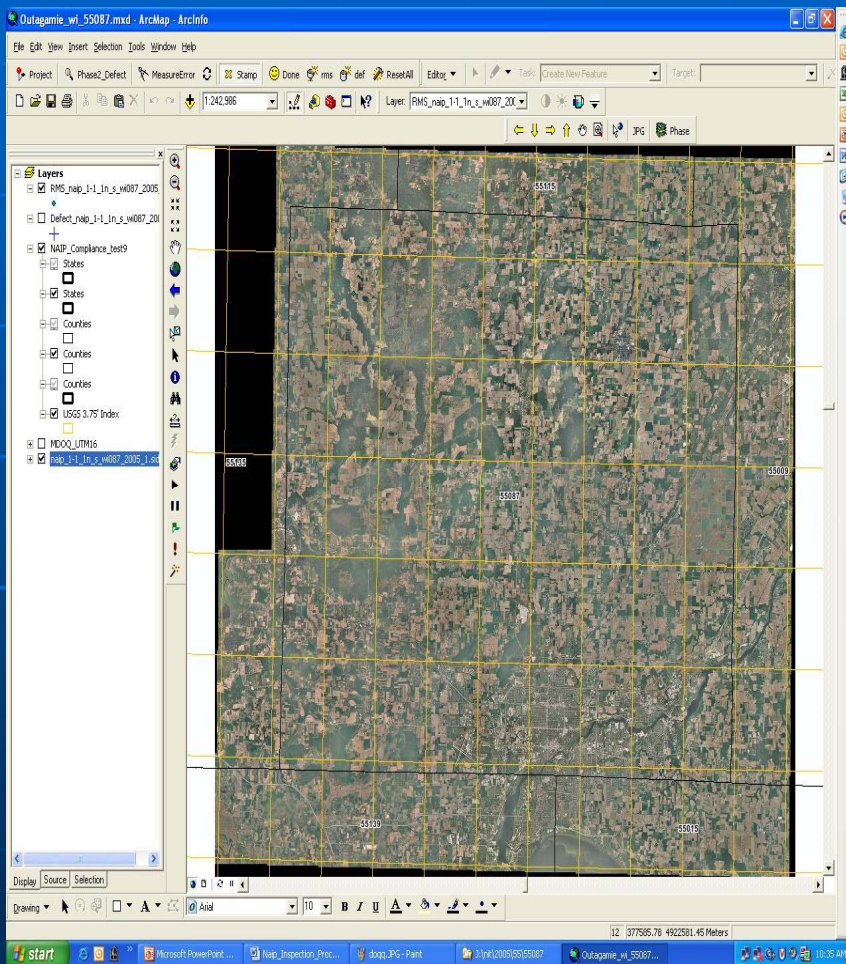
- Inspection begins when CCM is in house and loaded into the system

- Inspection process is faster and can begin sooner

- Larger area (CCM vs. DOQQ) speeds up inspection

- Combination CCM and DOQQ inspection

- Random DOQQs are inspected

- DOQQs with visual anomalies are inspected

Phase 1 Inspection

- CCM quick check.

- The purpose of Phase 1 Inspection is to find major errors early in the Inspection process.

- Defects noted are missing imagery and offsets over 20 meters.

- Vendors can be notified early in the process if there are problems that can be corrected.

Phase 2 Inspection Introduction

- The purpose of Phase 2 Inspection is to thoroughly examine the imagery for quality and horizontal accuracy.

- Phase 2 Inspection involves a quality check and a horizontal accuracy check on the CCM.

- Phase 2 Inspection is usually done by the same inspector as Phase 1 but can be done by anyone on the Inspection team if the need arises.

Phase 2 Horizontal Accuracy Inspection

- Horizontal Accuracy is checked on the CCM against an independent source of imagery.

- The tolerance for the imagery is 5 meters for 1 meter imagery and 10 meters for 2 meter imagery.

- The number of points picked is determined by the number of tiles which were used to make the CCM.

Phase 2 Horizontal Accuracy Inspection (Cont)

- 10 points are picked for counties less than 100 tiles.

- 10 percent of the total number of tiles that make up the CCM are picked on counties over 100 tiles.

- If any point fails the tolerance, the DOQQ where the point was picked is pulled for a horizontal accuracy check at the DOQQ level in Phase 3 inspection.

Phase 2 Quality Inspection

- All defects collected are associated with both with the CCM and the individual DOQQ.

- 1 meter resolution imagery is inspected at a scale of 1:5500.

- 2 meter resolution imagery is inspected at a scale of 1:8000.

Phase 2 Quality Inspection (cont)

Image defects collected in Phase 2 inspection:

- Offsets
- Missing Imagery
- Scratches/Streaks
- Artifacts
- Smearing
- Foreign Imagery
- Specular Reflectance
- Clouds and Shadows

Phase 2 Quality Inspection (cont)

- Anomaly defect codes are used to create a list of DOQQs that need closer inspection because of severe quality issues.

- The inspector will look at these DOQQs in Phase 3 Inspection.
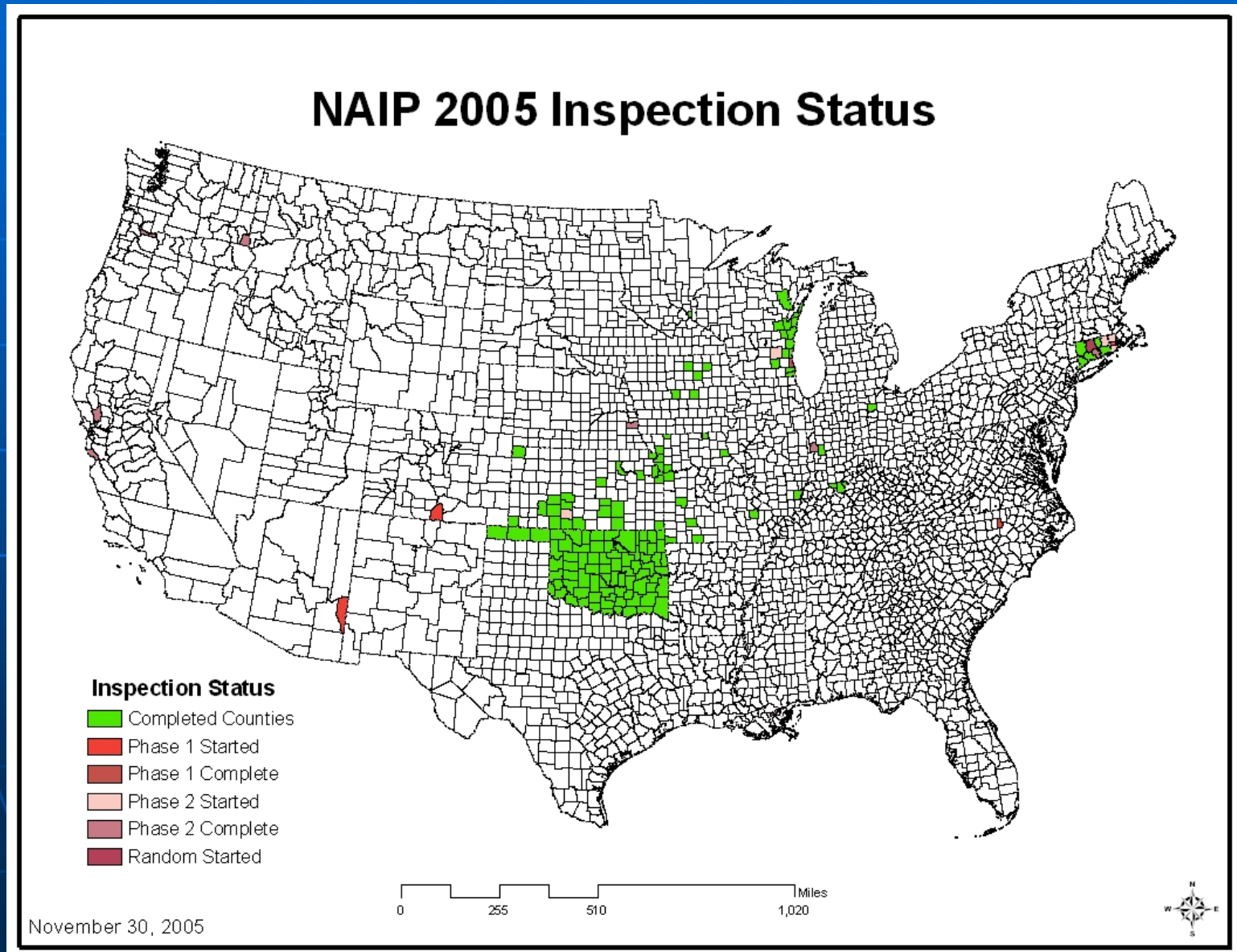
Phase 2 Quality Inspection (cont)

Phase 2 anomaly defect codes used:

- Clouds Anomaly
- Offsets Anomaly
- Missing Imagery Anomaly
- Artifacts Anomaly
- Smearing Anomaly
- Foreign Imagery Anomaly
- Specular Reflectance Anomaly
- Horizontal Accuracy Anomaly

Phase 3 Inspection

- Phase 3 Inspection involves looking at the individual DOQQs.

- A random sample (10% of CCM) of DOQQs are checked along the tile boundaries where problems may be hidden due to overlap when creating the CCM.

- A Visual Anomaly inspection of DOQQs is performed if Anomalies are found in Phase 2 Inspection.

Status of current 2005 Inspection

NAIP 2005 Inspection Status

Inspection Status

- Completed Counties
- Phase 1 Started
- Phase 1 Complete
- Phase 2 Started
- Phase 2 Complete
- Random Started

November 30, 2005

Miles
0   255   510   1,020

Conclusions

- New 2005 NAIP Inspection Process will increase productivity.

- Inspection results will be more consistent using one inspection team.

- Vendors can be notified much earlier to address problems with imagery.

- Reconciliation of contracts should be more manageable.

Kansas City 31 Denver 27